ADDRESS BEFORE THE BIOLOGICAL DIVISION OF THE AMERICAN CHEMICAL SOCIETY[1]

GENTLEMEN, I did not come to Rochester with the intention of making a speech, but find—I am sorry to say—that Professor Chambers expects me to talk. He made the request—or, shall I say, demand—as we came into this room. I find that I am driven to the usual refuge of those who have to speak when they would rather be silent—that is, I will take refuge in the history of my subject.

This subject has, I think, some general interest because originally no very definite distinction was made between biochemistry and any other kind of chemistry. One of the first real biochemists was Lavoisier, whom all matter, whether living or dead, interested. He performed the first calorimetric experiments. He was the inventor of the ice calorimeter, and showed that animal heat was the result of oxidation. All the chemists of that generation and the immediately succeeding one did biochemical work. I need only cite Liebig, who is perhaps in some ways the greatest of all biochemists. Unfortunately, about the latter part of Liebig's life chemists lost interest in biochemistry. This was due very largely to the sudden and tremendous development of organic chemistry, which was brought about by the discoveries of men like Hofmann and Kekulé. It was so easy to make new synthetic substances and thereby gain a sort of immortality, even though the main result of putting a chlorine atom here and a bromine atom there was to fill up Beilstein. In consequence, thoroughly trained chemists did not busy themselves with subjects that were really important in the elucidation of that matter which is found in living organisms, and which forms the physiological basis of life. The scientists in biology and medicine needed such information. The chemists did not give it to them. Consequently, physicians and physiologists who were ill-equipped for chemical research were forced to carry forward the work of biochemistry. Though the net result of their work made decidedly for progress, only too often it created confusion and artificial difficulties. Even the best biochemists of those days make us wonder why they did not pursue their chemical investigations as far as the chemical methods of that day would permit. The answer is, I think in many cases, that they were not real chemists but physiologists with a chemical veneer. Fortunately, this has been changing during the past decade, largely owing to the work of Emil Fischer. While we recognize in him a master of chemical technique, we may be certain that in a measure, at any rate, the preeminent position which he occupies among the chemists of his time is due to his clear conception of the really most important work in organic chemistry along biochemical lines. Fortunately, more and more organic chemists are following in his footsteps, and are devoting their attention to substances which occur in living things. I wish here to make a plea for more of this sort of work in America. I believe that the rewards and recognition for knowledge of chemistry applied in biochemistry are great, because the work of the biochemist will be applauded not merely by chemists, but also by zoologists, botanists and physicians. A biochemist has a wider audience because his work presents a more general appeal than the work of organic chemists upon such subjects as dyestuffs and the like. Further, I wish to point out the value of instruction in allied subjects. Not every organic chemist can successfully attack all biochemical problems. Because his organic chemistry, other experience in physiology, and above all, experience in dealing with substances which do not crystallize, are necessary. In many cases it is difficult to conduct biochemical research because the biochemist must very frequently begin with the smears, which the organic chemist consigns preferably to the slop jar. While the things which will not crystallize interest less the organic chemist, they are the very classes of substances with which the biochemist must deal. Great care, great patience and a knowledge of colloids are required of the organic chemist who wishes to work in biochemistry, but I feel

[1] Given by the chairman, Rochester, N. Y., September 12, 1913.

confident that the reward for such men is great, not merely in pure science, but also in industries and in the arts.

The history of biochemistry in America is similar to that abroad. In America it developed first in the seventies and eighties in the medical schools of the country; and, at that time, it was controlled by physicians and physiologists abroad. The subject was narrowed to the consideration of biochemistry as affecting the life of man. That is to say, the chemical side of physiological processes of the human body together with such considerations of bacteriological chemistry as affect man in health and in disease. This phase of biochemistry is cared for very adequately and acceptably by the American Society of Biological Chemists, the first biochemical society to be formed in America.

The phase of biochemistry which the American Chemical Society can very naturally expect to encourage are quite distinct from the aims of the American Society of Biological Chemists. Our usefulness will include the biochemistry affecting agriculture, phytochemistry in particular, and such industrial processes as are based upon biochemical reactions. For example, the more exact study of the chemical composition of fruits, grains and food products. It must be admitted that, at present, we know only those chemical substances occurring in considerable amounts in such important grains as wheat and corn. The minor constituents in grains of much importance have not been identified with exactness. If we consider grains of less importance even this degree of knowledge can not be claimed.

Some of our most important modern industries, like those dealing with starch, artificial fabrics, leather tanning materials, glue and gelatin, meat packing and the flour-milling industry require biochemists, and we are now training men to deal with such practical problems.

If our society confines itself to the activities already mentioned, there still remains a wide field of biochemistry uncared for, the biochemistry of the lower animals. This part of the biochemical work will become a part of the work in the zoological societies of the country. My view is that three societies of biological chemistry can well exist in America without competing in any way and each one caring for a specific need. These would include the biochemistry of the higher animals and its application to medicine; the biochemistry of the lower animals, and biochemistry in its application to plants, agriculture and the industries.

Carl L. Alsberg

MEETING OF THE COMMITTEE ON POLICY OF THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

The committee on policy met at the Cosmos Club, Washington, on November 17, 1913, at 8 P.M., Chairman Minot presiding. Messrs. Fairchild, Nichols, Humphreys, Cattell and Howard were also present.

The permanent secretary made an ad interim report of progress, stating that, unexpectedly, news from the Pacific Coast Division had been delayed by reason of floods and that his office was not definitely informed of action taken by that committee. He stated that the committee having power to appoint the temporary secretary for the South had selected Dr. Robert M. Odgen, of the University of Tennessee, and that he had been actively engaged in the work since October 1, and a letter which he sent out to southern members was read. The report on membership showed a satisfactory increase. With regard to the Atlanta meeting, the permanent secretary stated that, owing to delay upon the part of the Atlanta local committee, the preliminary announcement was not yet in type but that he expected to be ready to mail it before the end of the month.

The arrangements for the Atlanta meeting were discussed and it was decided to have two evening lectures, complimentary to the citizens of Atlanta, one by Dr. C. W. Stiles, of the Public Health Service, on the Health of the Mother in the South, and one by Professor Charles E. Munroe, of the George Washington